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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/675,096	09/28/2000	Hsin-Chu Tsai	042390.P8829	9115

7590 07/28/2004

Mark L. Watson
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
Seventh Floor
12400 Wilshire Boulevard
Los Angeles, CA 90025-1026

EXAMINER

MONESTIME, MACKLY

ART UNIT	PAPER NUMBER
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2676

DATE MAILED: 07/28/2004

19

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/675,096

Applicant(s)

TSAI ET AL.

Examiner

Mackly Monestime

Art Unit

2676

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Response to Amendment

1. The request for reconsideration received on April 19, 2004, has entered and carefully considered. Claims 1-24 are still pending in the application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 5-8, 11-12, 14-16 and 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelleber (US Patent No. 5,287,438) in view of Huang et al (US Patent No. 5,682,522).
3. As per claims 1-2, 11 and 20-21, Kelleber substantially disclosed the invention as claimed, including a computer system comprising: a central processor unit to execute non-graphics instructions (Fig. 2, Item No. 32) a graphics core to compute graphical transformations via supersampling techniques (Fig. 2, Item No. 48; Abstract, lines 12-13).

Kelleber did not explicitly disclose a unified graphics cache coupled to the graphics core to store supersampling image, but did show the use of a frame buffer to supersampling image (Fig. 2, Item No. 52). However, Huang et al disclosed a unified memory divided into a frame buffer and a cache memory (Fig. 2, item No. 5). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the

invention was made to have utilized the unified memory taught by Huang et al into the system Kelleber because doing so would reduce the complexity of the computer system and increase the speed and performance of the system, but also reduce the overall cost of the system.

4. As per claims 3 and 22, Kelleber disclosed a central processing unit and a CPU cache coupled to the CPU core (Fig. 2, Items No. 32, 42).

5. As per claims 4 and 23, Kelleber disclosed a bus interface coupled to the CPU cache and the graphics cache (Fig. 2, Item No. 44).

6. As per claim 6, Kelleber disclosed a main memory coupled to the bus interface (Fig. 2, Item No. 40).

7. As per claims 7-8, 12, 14 and 15-16, Kelleber disclosed that the graphics core amplifies polygons and renders the polygons into the graphics cache; and image polygons are implemented via viewport transformation (col. 3, lines 39-42, lines 67-68; col. 4, lines 1-10; and col. 5, lines 30-50).

8. As per claims 5, 19 and 24, Kelleber disclosed that the graphics core operates according to a tile based rendering architecture (col. 4, lines 11-30).

9. Claims 9, 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelleber in view of Huang et al as applied to claims 1-8, 10-12 and 14-16, and further in view of Pfister et al (US Patent No. 6,448,968).

10. Pfister et al were cited in the last office action.

11. As per claims 9, 13 and 17, Kelleber and Huang et al did not disclose that the graphics core downsampling the image polygons after the polygons have been

rendered. However, Pfister et al disclosed the use of a downsampling technique (col. 12, lines 2-10). Moreover, numerous downsampling methods are well known in the graphics art; for instance downsampling often refers to a sampling of the image data by a factor of two in both the horizontal and vertical directions. In addition, the downsampled pixel value of a block of pixels in an image may be the medium value of all pixels in that block, wherein the block size is four pixels, which is typical, the values of the pixels in the block may be added together and divided by four. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have utilized the downsampling technique taught by Pfister et al into the system of Kelleber and Huang et al because doing so would enhance the quality of the resulting image.

12. Claims 10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelleber in view of Huang et al and Pfister et al as applied to claims 1-9 and 11-17 above, and further in view of Li et al (US Patent No. 5,860,060).

13. Li et al were cited in the last office action.

14. As per claims 10 and 18, the combination did not disclose the downsampling of the image polygons are implemented by executing a bit aligned block transfer.

However, the use of a bit aligned block transfer is well known in the computer graphics art. It can be evidenced in the reference by Li et al in which a bit blt hardware accelerator is used (col. 7, lines 19-20). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the cited

references because doing so would provide high quality "antialiased" text and graphics without requiring the calculation of colors by the host processor.

Response to Arguments

Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Matsuo et al (US Patent No. 6,219,062) taught a three dimensional graphic display device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mackly Monestime whose telephone number is (703) 305-3855. The examiner can normally be reached on Monday to Thursday from 7:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella, can be reached on (703) 308-6829.

Any response to this action should be mailed to:

Commissioner of Patent and Trademarks
Washington, D.C. 20231

or faxed to:

Art Unit: 2676

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, Va, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Mackly Monestime

Patent Examiner

June 29, 2004

Matthew C. Bella

MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600